State of Utah

Department of
Environmental Quality

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DIVISION OF AIR QUALITY
Richard W. Sprott
Director

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Lieutenant Governor

DAQE-IN2958001-04

May 11, 2004

Peter N. Hansen, P. E.
Vice President, Business Development
Calpine Corporation
4160 Dublin Boulevard
Dublin, California 94569

Dear Mr. Hansen:

Re: Intent to Approve: Approval Order for Vineyard Energy Center, LLC Natural Gas Electric Generating Station, Utah County – CDS A, ATT; NSPS, HAPs, Title IV, TITLE V MAJOR
Project Code: N2958-001

The attached document is the Intent to Approve (ITA) for the above-referenced project. ITAs are subject to public review. Any comments received shall be considered before an Approval Order is issued.

Future correspondence on this Intent to Approve should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. Please direct any technical questions you may have on this project to Ms. Milka M. Radulovic. She may be reached at (801) 536-4232.

Sincerely,

Rusty Ruby, Manager
New Source Review Section

RR:MR:re

cc: Utah County Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

INTENT TO APPROVE: APPROVAL ORDER FOR VINEYARD ENERGY CENTER, LLC NATURAL GAS ELECTRIC GENERATING STATION

Prepared By: Milka M. Radulovic, Engineer
(801) 536-4232
Email: milkar@utah.gov.

INTENT TO APPROVE NUMBER

DAQE-IN2958001-04

Date: May 11, 2004

Calpine Corporation
Source Contact
Barbara McBride
(925) 479-6600

Richard W. Sprott
Executive Secretary
Utah Air Quality Board

Abstract

The Vineyard Energy Center, LLC ("VEC"), a wholly owned subsidiary of Calpine Corporation "Calpine", is proposing to build a new power generating facility on the Geneva Steel LLC property located in Vineyard, Utah (Utah County). The project will be called the Vineyard Energy Center (VEC). The proposed project site, which lies within the property boundaries of the Geneva Steel LLC site, is situated northwest of the city of Orem, UT, near the northeast shore of Utah Lake. The project site lies approximately 39 miles south of the Salt Lake City metropolitan area. The proposed project will have the capacity to generate up to 978.2 megawatts (MW) net of electrical power. The VEC facility will consist of three (3) Siemens-Westinghouse 501F natural gas combustion turbines (CT), three (3) 662 MMBtu/hr supplementary fired heat recovery steam generators (HRSG) each equipped with duct burners (DB), one (1) condensing steam turbine generator (CSTG), a gas fired auxiliary boiler, a sixteen (16) cell cooling tower, a diesel standby generator, a diesel- fired fire pump, ammonia storage and handling equipment and water treatment and storage. The CTs will be operated exclusively in combined cycle mode. The combustion turbines and duct burners will be fueled exclusively by natural gas. Utah County is an attainment area of the National Ambient Air Quality Standards (NAAQS) for all pollutants, except PM_{10}. New Source Performance Standards (NSPS), A, Da, Db, and GG, apply to this source. National Emission Standards for Hazardous Air Pollutants (NESHAP) and Maximum Available Control Technology (MACT) regulations do not apply to this source. Title IV and Title V of the 1990 Clean Air Act apply to this source. The emissions, in tons per year, will be as follows: PM_{10} 201.4, NO_x 259.6, SO_2 20.4, CO 1195.32, VOC 83.4, HAPs 16.0 (including 3.12 tons per year of Formaldehyde).

NO_x, CO, PM_{10}, and formaldehyde, air quality modeling assessment consistent with UAC R307-410-2 was performed. The US EPA and the State accepted Industrial Source Complex Short Term - Version 3 (ISCST3) model was used by the Applicant to predict air pollutant concentrations under a simple/complex terrain/wake effect situation. The modeling analysis indicated, and the State verified, that there would be no violations of NAAQS and Prevention of Significant Deterioration increments consumption for the proposed project.

Proposed emissions subject to offset provision of UAC R307-403-5 are 481.4 (PM_{10}+SO_2+NO_x) tons per year and that resulted in offset requirement of 577.68 tons per year for the project.

The Notice of Intent (NOI) for the above-referenced project has been evaluated and has been found to be consistent with the requirements of the Utah Administrative Code Rule 307 (UAC R307). Air pollution producing sources and/or their air control facilities may not be constructed, installed, established, or modified prior to the issuance of an Approval Order (AO) by the Executive Secretary of the Utah Air Quality Board.

A 30-day public comment period will be held in accordance with UAC R307-401-4. A notice of intent to approve will be published in the Provo Daily Herald on May 11, 2004. During the public comment period the proposal and the evaluation of its impact on air quality will be available for both you and the public to review and comment. If anyone so requests a public hearing it will be held in accordance with UAC R307-401-4. The hearing will be held as close as practicable to the location of the source. Any comments received during the public comment period and the hearing will be evaluated.

Please review the proposed AO conditions during this period and make any comments you may have. The proposed conditions of the AO may be changed as a result of the comments received. Unless changed, the AO will be based upon the following conditions:

General Conditions:

1. This Approval Order (AO) applies to the following company:

Site Office	Corporate Office Location
Vineyard Energy Center, LLC	Calpine Corporation
1850 North Pioneer Lane	4160 Dublin Blvd
Vineyard, Utah 85058	Dublin, CA 94568
Phone Number NA	(925) 479-6600
Fax Number NA	(925) 479-7300

The equipment listed in this AO shall be operated at the following location:

Street address & UTMs

Universal Transverse Mercator (UTM) Coordinate System: UTM Datum NAD27
4,464.65 kilometers Northing, 435.9 kilometers Easting, Zone 12

2. All definitions, terms, abbreviations, and references used in this AO conform to those used in the Utah Administrative Code (UAC) Rule 307 (R307) and Title 40 of the Code of Federal Regulations (40 CFR). Unless noted otherwise, references cited in these AO conditions refer to those rules.

3. The limits set forth in this AO shall not be exceeded without prior approval in accordance with R307-401.

4. Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved in accordance with R307-401-1.

5. All records referenced in this AO or in applicable NSPS standards, which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or Executive Secretary's representative upon request, and the records shall include the five-year period prior to the date of the request. Records shall be kept for the following minimum periods:

A.	Emission inventories	Five years from the due date of each emission statement or until the next inventory is due, whichever is longer.
B.	All other records	Five years

6. Vineyard Energy Center, LLC shall install and operate equipment in accordance with the terms and conditions of this AO, which was written pursuant to Calpine Corporation's Notice of Intent submitted to the Division of Air Quality (DAQ) on November 18, 2003 and additional information submitted to the DAQ on September 8, 2003, December 11, 2003, December 15, 2003, March 17, 2004, March 29, 2004, and April 20, 2004.

7. The approved installations shall consist of the following equipment or equivalent*:

A. Three (3) Siemens-Westinghouse* natural gas-fired dry low-NO_x, combined cycle turbines, each with 150 feet stack (as measured from the base of the stack) and maximum heat input of 1,738 MMBtu/hr (each) at HHV***

B. Three (3) heat recovery steam generators (HRSGs), each equipped with 662 MMBtu/hr (HHV) low NO_x duct burner,

C. Three (3) CO catalysts, one for each turbine/HRSG set

D. Three (3) Selective Catalytic Reduction (SCR) systems with ammonia injection, one for each turbine/HRSG set

E. One (1) steam turbine**

F. One (1) natural gas-fired 166 MMBtu/hr auxiliary boiler with 40 ft. boiler stack (as measured from the base of the stack)

G. One (1) 1,250 kW diesel-fired emergency generator

H. One (1) 300 hp diesel-fired fire pump

I. One (1) 16 Cell forced draft cooling tower with drift elimination

J. Water treatment and storage facilities**

K. Anhydrous ammonia storage and handling equipment**

* Equivalency shall be determined by the Executive Secretary.
** This equipment is listed for informational purposes only. There are no emissions from this equipment.
*** HHV-higher heating value

8. Calpine Corporation shall notify the Executive Secretary in writing when the installation of the equipment listed in Condition #7 has been completed and is operational, as an initial compliance inspection is required. To insure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, attn: Compliance Section.

If construction and/or installation has not been completed within eighteen months from the date of this AO, the Executive Secretary shall be notified in writing on the status of the construction and/or installation. At that time, the Executive Secretary shall require documentation of the continuous construction and/or installation of the operation and may revoke the AO in accordance with R307-401-11.

Limitations and Tests Procedures

9. Emissions to the atmosphere at all times from the indicated emission point(s) shall not exceed the following rates and concentrations:

Source: Each Turbine/HRSG Stack (when operating w/o Duct Burner)

Pollutant	Limitations at 15% O_2	Averaging Period
PM_{10}	9 lb/hour*(0.00518 lb/MMBtu)	24-hour**
NO_x	2 ppmvd* (12.6 lb/hr)	3-hour
CO	3 ppmvd* (11.5 lb/hr)	3-hour

Source: Each HRSG Stack (when operating in combined cycle mode with Duct Firing)

Pollutant	Limitations at 15% O_2*	Averaging Period
PM_{10}	15 lb/hour*(0.00631 lb/MMBtu)	24-hour**
NO_x	2 ppmvd* (17.3 lb/hr)	3-hour
CO	3 ppmvd* (15.8lb/hr)	3-hour

* Excluding startups, shutdowns and short-term excursions as defined in the Conditions #11 and #12

** Based on a 24-hour test run or any method approved by the Executive Secretary, which will provide 24-hour data

10. Stack testing to show compliance with the emission limitations stated in the above condition shall be performed as specified below:

A.

Emissions Point	Pollutant	Testing Status	Test Frequency
HRSG Stacks	PM_{10}	*	$
	NO_x	*	#
	CO	*	#

B. Testing Status (To be applied to the source listed above)

* Initial compliance testing is required. The initial test date shall be performed as soon as possible and in no case later than 180 days after the start up of a new emission source, an existing source without an AO, or the granting of an AO to an existing emission source that has not had an initial compliance test performed. If an existing source is modified, a compliance test is required on the modified emission point that has an emission rate limit.

$ Test every year or testing may be replaced with parametric monitoring if approved by the Executive Secretary

\# Compliance shall be demonstrated through use of a Continuous Emissions Monitoring System (CEM) as outlined in Conditions #14.A and #21 below. The Executive Secretary may require testing at any time.

C. Notification

The Executive Secretary shall be notified at least 30 days prior to conducting any required emission testing. A source test protocol shall be submitted to DAQ when the testing notification is submitted to the Executive Secretary.

The source test protocol shall be approved by the Executive Secretary prior to performing the test(s). The source test protocol shall outline the proposed test methodologies, stack to be tested, and procedures to be used. A pretest conference shall be held, if directed by the Executive Secretary.

D. Sample Location

The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other methods as approved by the Executive Secretary. An Occupational Safety and Health Administration (OSHA) or Mine Safety and Health Administration (MSHA) approved access shall be provided to the test location.

E. Volumetric Flow Rate

40 CFR 60, Appendix A, Method 2 or EPA Test Method No. 19 "SO_2 Removal & PM, SO_2, NO_x Rates from Electric Utility Steam Generators" or other testing methods approved by the Executive Secretary.

F. PM_{10}

For stacks in which no liquid drops are present, the following methods shall be used: 40 CFR 51, Appendix M, Methods 201, 201A and 202 or other testing methods approved by the Administrator. All particulate captured shall be considered PM_{10}. The back half condensibles shall be used for compliance demonstration as well as for inventory purposes.

For stacks in which liquid drops are present, methods to eliminate the liquid drops should be explored. If no reasonable method to eliminate the drops exists, then the following methods shall be used: 40 CFR 60, Appendix A, Method 5, 5a, 5d, or 5e as appropriate, or other testing methods approved by the Executive Secretary. The back half condensibles shall also be tested using the method specified by the Executive Secretary. The portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Executive Secretary.

G. Nitrogen Oxides (NO_x)

40 CFR 60, Appendix A, Method 7, 7A, 7B, 7C, 7D, 7E, or other testing methods approved by the Executive Secretary.

H. Carbon Monoxide (CO)

40 CFR 60, Appendix A, Method 10, or other testing methods approved by the Executive Secretary.

I. Calculations

To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary, to give the results in the specified units of the emission limitation.

11. Compliance with 3-hour NO_x and CO emission limitations specified in Condition #9 shall not be required during short-term excursions, limited to a cumulative total of 160 hours annually. Short-term excursions are defined as 15-minute periods designated by the Owner/Operator that are the direct result of transient load conditions, not to exceed four consecutive 15-minute periods, when the 15-minute average CO or NO_x concentration exceeds 3.0 and 2.0 ppmv, dry @ 15% O_2, respectfully. Transient load conditions include the following:

(1) Initiation/shutdown of combustion turbine inlet air cooling
(2) Rapid combustion turbine load changes
(3) Initiation/shutdown of HRSG duct burners
(4) Provision of Ancillary Services and Automatic Generation Control at the direction of the PacifiCorp.

During periods of transient load conditions, NO_x shall not exceed 25 ppmv, dry @ 15% O_2. All NO_x emissions during these events shall be included in all calculations of annual mass emissions as required by this permit.

12. Startup is defined as the period beginning with turbine initial firing until the unit meets the ppmvd emission limits in Condition #9 for steady state operation. Shutdown is defined as the period beginning with the initiation of turbine shutdown sequence and ending with the cessation of firing of the gas turbine engine. Startup and shutdown events shall not exceed 399 hours per turbine per calendar year and are counted toward the applicable annual emission limitations.

The cumulative startup and shutdown period shall not exceed 8-hours in any one day, commencing at midnight. Emissions during startup and shutdown periods must be counted toward the applicable annual emission limitations.

13. Visible emissions from the following emission points shall not exceed the following values:

A. All natural gas combustion exhaust stacks - 10% opacity
B. All other points - 20% opacity

Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9.

14. The following limits shall not be exceeded:

Combined emissions of PM_{10}+ NO_x + SO_2 shall not be greater than 481.4 tons per calendar year (from the plant-gas turbines, the duct burners, fire pump, auxiliary boiler, and emergency generator)

Compliance to the above emission limitation for the offsets shall be determined as follows:

A. NO_x from the gas turbine and the duct burner shall be obtained from CEMS recorded data

B PM_{10} from the gas turbine and the duct burner shall be obtained from the latest emission test record data

C. SO_2 from the gas turbine and the duct burner shall be from the latest emission test or if testing is not required by the other alternative method as approved by the Executive Secretary or Administrator.

D. NO_x, PM_{10} and SO_2 for auxiliary boiler, emergency generator, cooling tower and fire pump shall be obtained from the U.S. EPA's compilation of air pollutants emission factors, AP-42.

To determine compliance with the combined annual limit the owner/operator shall calculate average hourly rate (using CEMS recorded data as outlined in Condition #21, test results and AP-42 calculations) and sum them over calendar year.

15. Emergency generators shall be used for electricity producing operation only during the periods when electric power from the public utilities is interrupted, or for regular maintenance and testing of the generators. Records documenting generator usage shall be kept in a log and they shall show the date the generator was used, the duration in hours of the generator usage, and the reason for each generator usage

Fuels

16. The owner/operator shall use natural gas as fuel in the combustion turbines, duct burners, and auxiliary boiler.

17. The owner/operator shall use a combination of #2 fuel oil or diesel fuel in the emergency generators and fire pump.

18. The sulfur content of any #2 fuel oil or diesel fuel burned shall not exceed 0.05 percent by weight. The sulfur content shall be determined by ASTM Method D-4294-89 or approved equivalent. Certification of used oil shall be either by Calpine's own testing or test reports from the used oil fuel marketer. Certification of other fuels shall be either by Calpine's own testing or test reports from the fuel marketer.

Federal Limitations and Requirements

19. In addition to the requirements of this AO, all applicable provisions of 40 CFR 60, New Source Performance Standards (NSPS) Subpart A, 40 CFR 60.1 to 60.18 and Subpart GG, 40 CFR 60.330 to 60.334 (Standards of Performance for Stationary Gas Turbines) and Subpart Da, 40 CFR 60.40a to 60.49a (Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978), and Subpart Dc, 40 CFR 60.40b to 60.49b (Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units), apply to this installation.

20. In addition to the requirements of this AO, all applicable provisions of 40 CFR Part 72, 73, 75, 76, 77 and 78, Federal Regulations for the Acid Rain Program under Clean Air Act Title IV apply to this installation.

Monitoring - Continuous Emissions Monitoring

21. Calpine shall install, calibrate, maintain, and operate a continuous emissions monitoring system on each of the HRSG stacks. Calpine shall record the output of the system, for measuring the NO_x emissions and the CO emissions. The monitoring system shall comply with all applicable sections of R307-170; 40 CFR 60.13; and 40 CFR 60, Appendix B.

    All continuous emissions monitoring devices as required in federal regulations and state rules shall be installed and operational prior to placing the affected source in operation.

    Except for system breakdown, repairs, calibration checks, and zero and span adjustments required under paragraph (d) 40 CFR 60.13, the owner/operator of an affected source shall continuously operate all required continuous monitoring systems and shall meet minimum frequency of operation requirements as outlined in 40 CFR 60.13 and Section R307-170.

Records & Miscellaneous

22. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this Approval Order including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded.

23. The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring.

24. The owner/operator shall comply with R307-107. General Requirements: Unavoidable Breakdowns.

The Executive Secretary shall be notified in writing if the company is sold or changes its name.

Under R307-150-1, the Executive Secretary may require a source to submit an emission inventory for any full or partial year on reasonable notice.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including R307.

A copy of the rules, regulations and/or attachments addressed in this AO may be obtained by contacting the Division of Air Quality. The Utah Administrative Code R307 rules used by DAQ, the Notice of Intent (NOI) guide, and other air quality documents and forms may also be obtained on the Internet at the following web site:
http://www.airquality.utah.gov/

The annual emissions estimations below are for the purpose of determining the applicability of Prevention of Significant Deterioration, non-attainment area, maintenance area, and Title V source requirements of the R307. They are not to be used for determining compliance.

The Potential To Emit (PTE) emissions for this source are currently calculated at the following values:

	Pollutant	Tons/yr
A.	PM_{10}	201.4
B.	SO_2	20.4
C.	NO_x	259.6
D.	CO	1195.32
E.	VOC	83.4
F.	HAPs	
	Formaldehyde	3.12
	Total HAPs	16

Offsets requirements of 481.4 x 1.2 =577.68 tons (PM_{10}+SO_2+NO_x)

The Division of Air Quality is authorized to charge a fee for reimbursement of the actual costs incurred in the issuance of an AO. An invoice will follow upon issuance of the final Approval Order.

Sincerely,

Rusty Ruby, Manager
New Source Review Section